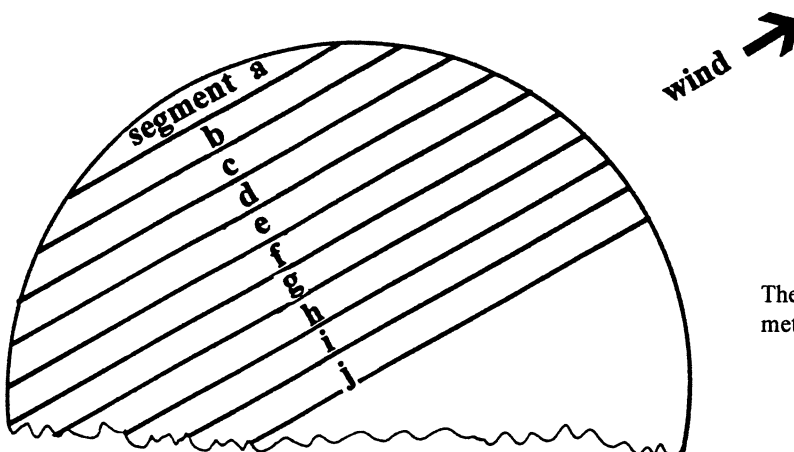
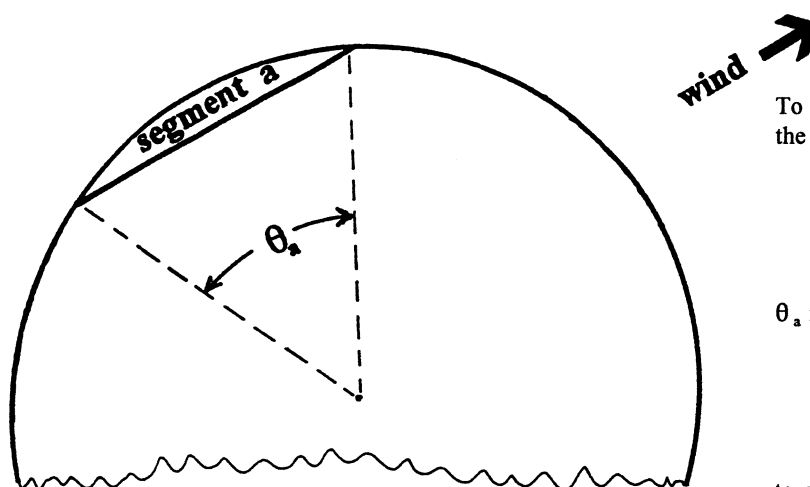


APPENDIX L-1



The 100 meter radius circle is divided into 10 meter width strips.



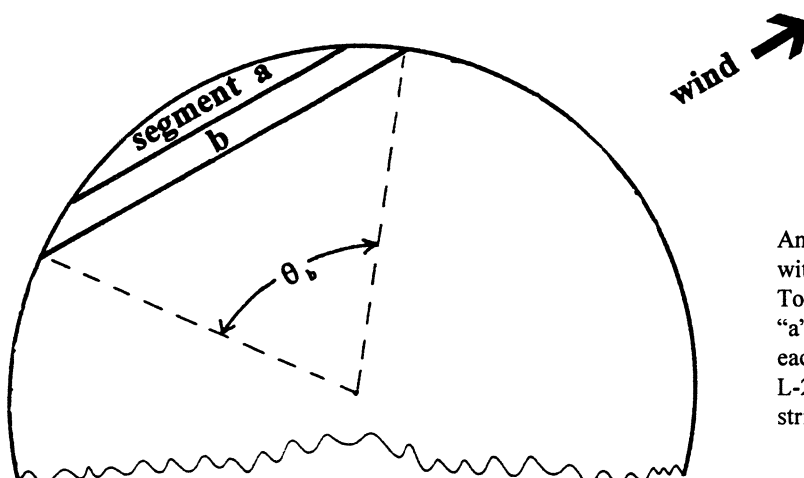
To calculate the area for strip "a" first calculate the angle θ_a . Using

$$\cos \frac{1}{2} \theta_a = \frac{r - 10}{r} = 0.9$$

θ_a is 51.7° . Then use

$$S_a = \frac{\pi r^2 \theta_a}{360} - \frac{r^2 \sin \theta_a}{2}$$

to compute total segment area "a". The equivalent length of the 10-meter wide strip is 58.8 meters.



Angle θ_b is 73.7° . Using the above equation with θ_b gives the area of segments "a" and "b". To get the area of segment "b" subtract area "a" from the segment area "a+b". Calculate each strip (a-j) in a similar manner. Appendix L-2 gives the details of the calculations for strips a through j.

APPENDIX L-2

Segment	θ <i>degrees</i>	Multiplier ¹	Total Area of segment <i>meters</i> ²	Area of strip only <i>meters</i> ²	Length of 10-meter strip <i>meters</i>
a	51.7	0.05878	587.8	587.8	58.8
b	73.7	0.16325	1632.5	1044.7	104.5
c	91.1	0.29509	2950.9	1318.4	131.8
d	106.3	0.44774	4477.4	1526.5	152.7
e	120.0	0.61419	6141.9	1664.5	166.5
f	132.8	0.79204	7920.4	1778.5	177.9
g	145.1	0.98017	9801.7	1881.3	188.1
h	156.9	1.17305	11730.5	1928.8	192.9
i	168.5	1.37076	13707.6	1977.1	197.7
j	180.0	1.57080	15708.0	2000.4	200.0

¹ Values in this table are based on a radius of 100 meters. The multiplier is given to facilitate calculations for circles with different radii. To determine the area for a segment in a circle with a radius of “x” multiply the “multiplier” times “x”.